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# SCIENCE NEWS LETTER

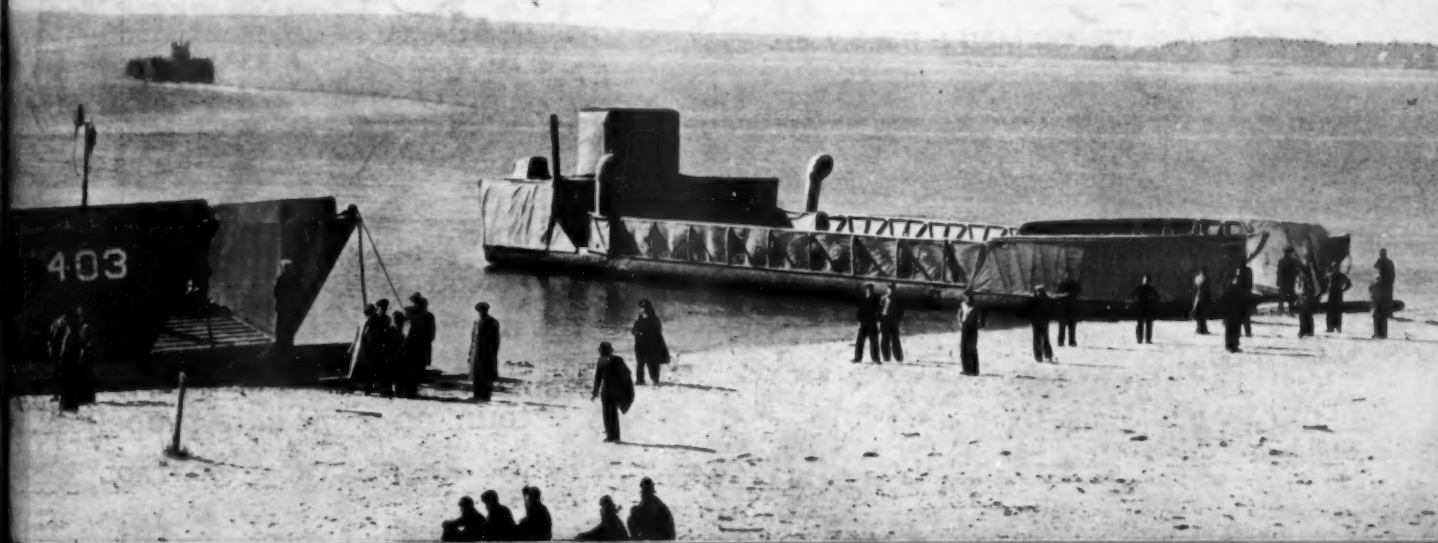
THE WEEKLY SUMMARY OF CURRENT SCIENCE • DECEMBER 15, 1945

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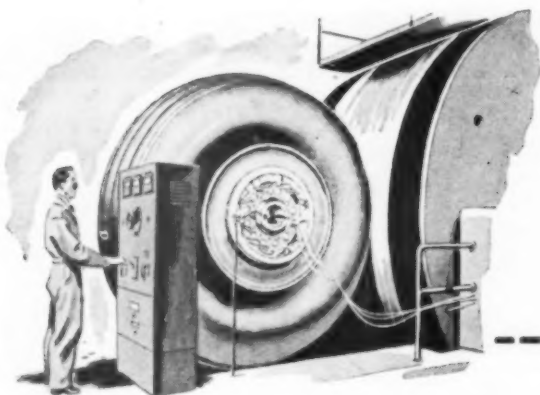
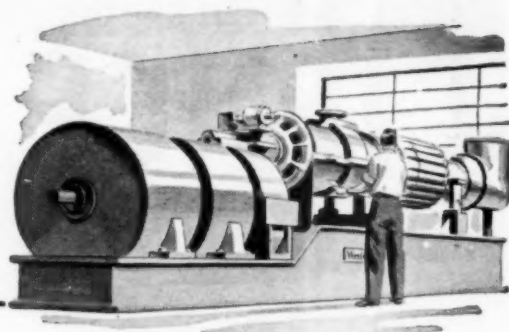
Deceiving Decoy

See Page 374

A SCIENCE SERVICE PUBLICATION

In a laboratory a **SCIENTIST** experiments with a new gas turbine—using heat-resisting alloy blades that are far stronger, at 1100°F., than ordinary steel at room temperature.

...the name on the **GAS TURBINE** is Westinghouse.



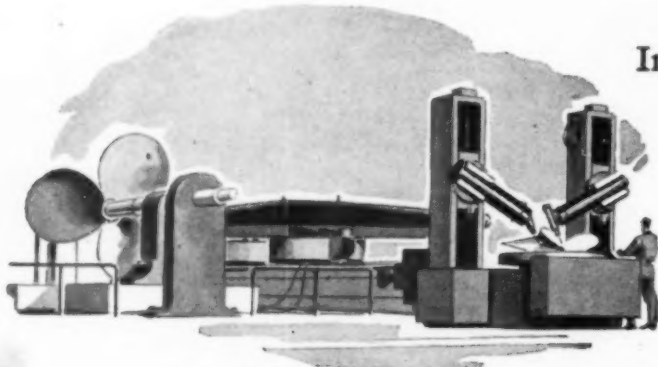
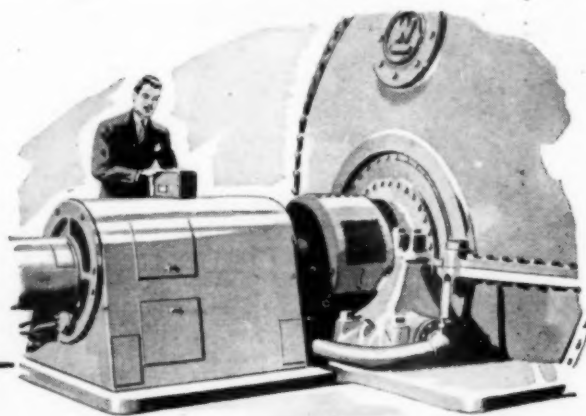
On a special machine a **TESTER** employs a Rototrol\* for smoothly accelerating a large flywheel, used in determining the wear-resisting qualities of tires and brakes—for huge air transports of the future.

...the name on the **ROTOTROL** is Westinghouse.

\*Registered Trademark

In a power plant an **ENGINEER** uses a Vibrograph to “take the pulse” of a turbo-generator . . . recording the smallest vibrations as a trace on a film.

...the name on the **VIBROGRAPH** is Westinghouse.



In a manufacturing plant an **OPERATOR** uses an electronic control to regulate the movement of milling cutters—for accurately machining irregular contours on giant ship propellers.

... the name on the **ELECTRONIC CONTROL** is Westinghouse.

**Westinghouse**  
PLANTS IN 25 CITIES OFFICES EVERYWHERE

**NOW THAT** Westinghouse technical skill and “know-how” have turned from war to peace, expect great things . . . from Westinghouse research, engineering, and precision manufacture.

## BIOCHEMISTRY

# New Antibiotic

**Penicillin-like substance, effective against germs of boils, tuberculosis and undulant fever, found in bacteria that cause bee disease.**

► NEWEST addition to the rapidly growing family of antibiotics, or germ-stopping substances of the penicillin family, has been found in pure cultures of the bacteria that cause one of the most troublesome of bee diseases, American foulbrood. Discovery of the new antibiotic is announced by Dr. E. C. Holst of the U. S. Department of Agriculture. (*Science*, Dec. 7)

Dr. Holst was led to suspect that this bacterium might produce an antibiotic by the fact that honeybee larvae dead of the disease almost invariably contain this microorganism and no others, suggesting that the causal bacterium produced something that would keep competing species from growing. Test plantings of the foulbrood bacteria in growths of a considerable number of other bacteria proved this to be the case: the foulbrood bacterial growth would surround itself with a zone in which the other species could not grow.

Among the microorganisms that were thus prevented from multiplying in the presence of foulbrood bacteria were the germs of common boils (also the cause

of food-poisoning in cream pastries); tuberculosis, both human and bovine strains; undulant fever; also a number of bacterial species that do not ordinarily cause disease.

Although the new antibiotic substance has not yet been isolated in pure state, some facts have been determined about it. It is soluble in water but not in the alcohols or other organic solvents. It does not pass through a membrane of cellophane or parchment, which indicates that its molecules are at least fairly large.

It can stand a moderate degree of heat, and can be sterilized by pasteurization without appreciable loss of potency. Age does not seem to harm it: foul-brood specimens four years old yielded active preparations. Glucose hinders its action, but ordinary cane sugar does not, nor does glycerin. It had some poisonous effects when injected into mice, but gave no evidence of toxicity when fed to them by mouth.

Dr. Holst states that experiments to determine possible use in the treatment of disease are in progress.

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## MEDICINE

# Relief From Hayfever

**New drug brings prompt relief in hives and hayfever. While not a cure, it may point the way to even better drugs for allergic sufferers.**

► VICTIMS of two kinds of allergic suffering, hayfever and hives, may in future be getting relief from their misery by taking two or three pills daily of a new drug, it appears from studies reported by Dr. Earl R. Loew, of the University of Illinois College of Medicine, and by a group of scientists at the Mayo Clinic.

The new drug is known as benadryl. Its chemical name is beta dimethylaminoethyl benzhydryl ether hydrochloride. It was first made, for other purposes, by Dr. George Rieveschl, Jr., of the Parke, Davis and Company laboratories in Detroit. Dr. Loew and associates tested its

action and degree of poisonous effect on laboratory animals and Dr. Loew, the Mayo Clinic group and Drs. A. C. Curtis and B. B. Owens of the University of Michigan have since tried it on human patients.

Benadryl is not a cure for hayfever or hives. Its action is to relieve the stuffy nose, smarting, watering eyes, itching and other symptoms of these allergic disorders. Hayfever patients presumably will have to take it daily during their seasonal bouts of suffering. Victims of chronic hives treated at the Mayo Clinic broke out again with bumps, swellings and itching when they stopped the drug,



**INSURES COMFORT**—The cabins of Pennsylvania Central Airlines Capitaliner planes are being lined with down-like glass fiber blankets to protect passengers from both noise and cold. The blankets are similar to those used during the war to provide sound and heat insulation for multi-motored bombers.

so apparently they also, including sufferers with angioneurotic edema, will have to continue taking the drug daily to be assured of relief.

Some asthma patients were helped by the drug, but others were not. The reason for this and various other features of the drug need further study, it is pointed out in the reports from the Mayo Clinic.

A wide margin of safety exists between the dose needed to relieve the patient and that which would produce serious toxic effects. Sleepiness, dizziness and a dry mouth may be felt after taking the drug but these symptoms quickly go away.

Relief of the hives and hayfever symptoms comes quickly, usually within 30 to 60 minutes after taking benadryl. The relief lasts for several hours, so that three doses daily may be enough.

Benadryl is believed to achieve its results because of an antihistamine action. Histamine is a chemical normally present in the body. It is believed that overproduction of this chemical causes the symptoms of hayfever and other allergies. Exactly how this happens is not yet known.

The development of benadryl, and of a series of other antihistamine drugs



which French scientists have been developing and investigating before and during the war, seem to point toward even greater future success in relieving allergic sufferers.

Mayo Clinic scientists reporting on

ELECTRONICS

## Locates Storm Areas

**Static Direction Finder, using cathode tube similar to radar and perpendicular receiving loops, locates storms within a radius of 2,000 miles.**

► STORM areas within a radius of 2,000 miles may be located by a new special electric equipment called a Static Direction Finder, which was used with success in the Pacific war theater, it is now revealed. The apparatus consists of a cathode-ray indicating tube similar to those used in radar and television, and two mutually perpendicular receiving loops and amplifiers.

For a long time it has been known that certain types of storms are accompanied by severe electrical disturbances, which, incidentally, are responsible for the crackling and grinding noises often heard by radio listeners. In the Static Direction Finders, called Sferics for short, these disturbances give a visual indication of a storm's direction.

An incoming static signal to the direction finder produces a straight-line flash on the face of the cathode ray tube. The angular position of this flash gives the direction of origin of the static crash. Several stations in a network taking observations at the same time on the same flashes can locate their source and spot the storm position within a 2,000-mile radius.

In its advance stages of development the direction finder was tested at the Army Air Force Center, Orlando, Fla. Although finding its first use in warfare, Sferics began as a scientific project at the University of Florida in 1934. At that time, Dean Joseph Weil at the college of engineering started work on tracking hurricanes by means of the static associated with them. Similar work was also undertaken on thunderstorms both in this country and abroad.

The U. S. Weather Bureau and the U. S. Navy soon became interested in the work and helped obtain funds and equipment to carry on the study. Apparatus built by the English National Physical Laboratory was secured through

benadryl are: Drs. T. W. McElin, Bayard T. Horton, P. A. O'Leary, F. M. Farber, G. A. Koelsche, L. E. Prickman, H. M. Carryer, H. L. Williams, G. B. Logan, and C. F. Code.

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the Navy. A network of stations in Florida and Cuba was put into operation with improved equipment constructed at the University.

Eighteen of these Static Direction Finders saw action during the war. They proved of high value, Army officials state, in securing information of weather and bombing conditions over enemy territory, and in routing planes around storm areas.

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ASTRONOMY

## Comet Friend-Peltier To Become Brighter

► THE COMET Friend-Peltier will pass nearest the sun on Dec. 17, according to an orbit computed by Dr. L. C. Cunningham, of Aberdeen Proving Grounds, and reported to Harvard Observatory Clearing House. This is the comet discovered by amateur astronomer Clarence Friend of Escondido, Calif., on Nov. 22 and independently observed by Leslie C. Peltier of Delphos, Ohio, two days later.

Indications are that the comet will become brighter than it was at discovery, when it was of the seventh magnitude, just below the limit of naked eye visibility. It is approaching so close to the sun in the sky, however, that it will practically be impossible to observe for several weeks to come. Its brightness after that time cannot be predicted with any certainty.

The present path of the comet is carrying it southward from the constellations of Corona and Hercules, where it was when discovered, into Ophiuchus and Sagittarius. It will pass the perihelion point in its orbit, when it will be nearest the sun, on Dec. 17, and after that time will be observable, if at all, in the southern hemisphere.

The apparent path of the comet as computed by Dr. Cunningham, when plotted on a map of the sky, swings in an arc shortly after the comet has gone south of the ecliptic. Probably the path of the comet through the latter part of December and the early part of January will nearly parallel the ecliptic, and the comet will take some time to get far from the sun. By then its distance from the earth will have increased considerably. At perihelion the comet will be about 18,000,000 miles from the sun but many times this distance from the earth.

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## SCIENCE NEWS LETTER

Vol. 48 DECEMBER 15, 1945 No. 24

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St. N. W., Washington 6, D. C. NORTH 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents. Monthly Overseas Edition: By first class mail to members of the U. S. Armed forces, \$1.25 a year. To others outside continental U. S. and Canada by first class mail where letter postage is 3 cents, \$1.25; where letter postage is 5 cents \$1.50; by airmail, \$1.00 plus 12 times the half-ounce airmail rates from U. S. to destination.

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Entered as second class matter at the post office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago, STAtE 4439.

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## MEDICINE-PHYSICS

# Betatron for Cancer

Improvement in treatment will result when scientists find a way to canalize the high energy electrons outside of the vacuum chamber.

► **SUBSTANTIAL** improvement in the treatment of deep-seated internal cancers will be possible when scientists find a way to canalize the high energy electrons of the betatron outside of the vacuum chamber, Dr. G. Failla of Columbia University told members of the American Physical Society at their meeting in St. Louis.

In time it will be possible, he said, to achieve this canalization so that the electron beam will deliver its maximum energy to the cancer with very little beyond that depth. The danger of damaging by overirradiation normal tissues in the neighborhood of the internal cancer will then be less.

The betatron makes it possible to treat cancer with X-rays of 20 million to 100 million volts. With all X-rays available heretofore, Dr. Failla explained, the skin receives more ionizing energy than the underlying tissues traversed by the beam of radiation, but with the multimillion volt X-rays produced by the betatron, the situation is reversed. The highest concentration of energy occurs at a con-

siderable depth below the surface of the skin. Beyond this level the dose drops slowly. A beam of multimillion volt X-rays traversing the human body is therefore more apt to damage the skin area through which it leaves the body than the skin through which it enters it. All organs in between will receive larger doses than the skin on either side. Whether they are damaged or not will depend on the magnitude of the treatment and on their respective radiosensitivities.

Damage to normal tissues, therefore, will continue to be the limiting factor in the treatment of deep-seated tumors.

The importance of taking greater care to protect persons working with the betatron than is necessary for those working with ordinary X-ray machines was stressed by Dr. Failla. While the accepted permissible dose for continued exposure of the whole body to ordinary X-rays is one-tenth of a roentgen, the safety limit for betatron workers, Dr. Failla believes, should be put at one-fifth of this, or 0.02 roentgen per day.

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DR. HENRY B. WARD

the house of zoology, and was responsible for the training of scores of successful research workers in this perhaps messy but nonetheless important and necessary subject. He founded the American Society of Parasitologists and was editor of its journal for nearly a generation.

Honored by many American and foreign scientific groups for his achievements in the most difficult kinds of research, Dr. Ward was nevertheless no dweller in an ivory tower. He knew the need for bringing the facts and interpretations of science home to the common man, and understood something of the technique of doing so, too. He participated actively in the affairs of the Izaak Walton League and the National Wildlife Federation, both of which organizations correlate the efforts of scientists and laymen for the benefit of wildlife. For a decade before his death, he was a trustee of Science Service.

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In general *fishes* are boat-shaped, adapted for swift passage through the water, with their broadest part in front of the middle, leaving the compressed paddle-like tail as the chief organ of locomotion.

*Sticklebacks*, pugnacious fish of Hawaii, are used by natives to catch others; one, caught alive, is suspended by a string among the rocks where others live and those that come out to fight the captive are drawn out with a net.

## ZOOLOGY

# Dr. Henry B. Ward Dies

► **FISHES**—other wildlife, too, but especially fishes—lost a good friend when Dr. Henry B. Ward, emeritus professor of zoology at the University of Illinois, died in his Urbana home Nov. 30. The octogenarian scientist had spent a long working lifetime as their frequent advocate; since they have no voices of their own he spoke for them when their rights and interests were threatened. When a dam was planned that would cut off an important fish migration route, he could be depended on to put up a fight for a practicable fish ladder or other means to let his friends find their way up to their spawning beds. He had a great deal to do, too, with the growing public consciousness that neither we nor the fish need to put up with waste-polluted streams and lakes.

Dr. Ward's interest in fishes was not

merely that of a nature-lover or of a fisherman, though he was both of these. His acquaintance with fishes was the more intimate kind that comes of close and accurate knowledge of their way of living. He did pioneer research work, for example, in exorcising the mystery of salmon migration: salmon, he demonstrated, when confronted with the choice of two branches of a stream to ascend, always chose the one with the colder water. There is still dispute whether this choice is a simple temperature reaction or whether other factors are involved, but Dr. Ward did discover the fact.

Internal troubles of animals in general claimed Dr. Ward's major attention during his many years as head of his department at the University of Illinois. He led in the development of parasitology as a distinct discipline within



## ORDNANCE

# "Ghost Army" Victories

Army of inflated pneumatic tubes and painted fabric won victories without fighting; true nature of decoy trucks and ships undetectable within a few hundred yards.

See Front Cover

► AN AMERICAN "ghost army" that never fought but won decisive victories has been revealed by the Army. Made up not of flesh and metal, but of inflated pneumatic tubes and painted fabric, this decoy army included men who couldn't move, two-and-a-half-ton trucks weighing only 86 pounds and field artillery that couldn't shoot. The picture on the front cover of this SCIENCE NEWS LETTER shows a decoy LCT and an actual LCT.

Enemy reconnaissance many times reported large-size mechanized units which in reality were only decoys constructed to stimulate 19 different weapons and pieces of equipment used by our forces. Set up during the night by specially trained units, the true nature of these decoys was undetectable even within a few hundred yards.

Two or three men could unfold a mass of tubes and cloth from an 18-cubic-foot bundle and within ten minutes a two-and-one-half-ton truck would stand beside them. The structural system of pneumatic cloth cemented to the tubing resembled perfectly from both the air and the ground the bulk and silhouette of its prototype.

Trucks of various capacities, tanks, antiaircraft and anti-tank guns, landing craft tanks, as well as various field artillery pieces, could be blown up with compressed air like gigantic Tony Sarg figures to represent large convoys or emplacements. An army could move to aid an endangered sector leaving behind what the enemy took to be fully equipped divisions. A weakened position was thus undetected and enemy breakthroughs were prevented.

Ten per cent of the number of men from a division were required to erect and maintain the decoys and create the appearance of normal activity. Many of the pneumatic decoys could stand ten days without repairs, but changes in temperature as well as handling methods made it necessary to keep a constant check and maintain correct pressure.

The idea for such decoys came out of the North African campaign, during which discarded barrage balloons were made into dummies to confuse the enemy. Success there made it advisable to perfect the method. The Engineer Board at Ft. Belvoir, Va., took the task in hand. By November, 1943, units were in production. Shortly after D-day completely equipped and trained forces were in action.

The problems of decoy construction were many. Proper fabrics coated with neoprene had to be developed. Four-inch-diameter tubing had to be constructed that could be bent and held in desired shapes. The decoys had to be easily erected and dismantled in the dark. They had to be of minimum bulk and weight. After extensive tests with various constructions the pneumatic construction was found more suitable.

Lace, theatrical equipment, tire and rubber companies aided in the production. The first large pneumatic decoy was an LCT. These were most effectively employed to give the enemy misleading in-

formation on ports of embarkation. Loaded with other decoys the ruse was even more successful.

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## CHEMISTRY

## DDT Patent Reissue Becomes Best Seller

► IT IS NOT often that the U. S. Patent Office publishes a best seller, but they got out one last week—somewhat to their embarrassment when requests for copies continued to come in and they could not supply them immediately.

The unforeseen best seller was a reissue of the American patent on DDT—officially Reissue 22,700, to Dr. Paul Mueller, assignor to J. R. Geigy, A. G., Basel, Switzerland. Dr. Mueller is the young Swiss chemist who discovered the insecticidal value of DDT, and the Geigy firm is the original manufacturer. Reissue of the patent was necessary to correct some omissions in the first U. S. patent, No. 2,329,074, issued Sept. 7, 1943.

Following the usual custom, the Patent Office ordered 400 copies of the reissue—and had orders exhausting the supply before noon on the day they were printed. A new printing has been ordered.

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Fall blooms on roses come more slowly and last longer than earlier blooms.



**FOOLED THE ENEMY!**—Here is a decoy LCT that misled the enemy on Allied ports of embarkation shown being assembled.



**QUICKLY ASSEMBLED**—The three sections of the pneumatic LCT packed in their compact bundles prior to inflation.

## ENTOMOLOGY

## 612 Repels Mosquitoes

New war-born repellent kept yellow fever mosquitoes away for 20 hours under laboratory conditions; it is also effective against chiggers.

► **CHIGGERS** as well as mosquitoes are discouraged in their nefarious business by the war-born insect repellent known as 612. Dr. Philip Granett of Rutgers University told fellow-entomologists at the New York meeting of the American Association of Economic Entomologists. As a chigger repellent, 612 is most effective when applied to the clothing; its effect then lasts for several days.

Under standardized laboratory testing conditions, one application of 612 on a limited skin area kept mosquitoes away for an average of about nine hours; applied in more liberal quantities, it held off *Aedes aegypti* (the yellow-fever mosquito) for as much as 20 hours. In the field, effectiveness does not usually last so long, because some of it is removed by rubbing against foliage and other objects, as well as by the user's own perspiration.

Chemically, the new repellent is 2-ethylhexanediol-1,3; its convenience-designation, 612, is simply its series number in tests that were run at Rutgers. It was used successfully by the armed forces and other war services under a wide variety of campaign conditions. It is a slightly viscous, colorless liquid with a mild, witch-hazel-like odor. It is non-irritating to the human skin, and lasts

well in storage even under extreme conditions.

Limited amounts of 612 were made available for civilian use late last summer; next season adequate quantities should be ready for general trade distribution.

While some entomologists are seeking chemicals that will drive off insects, others strive to find things that will bring the pests a-flying—to feast on Borgian banquets of poisoned bait or to fall to their death in traps. This has been the task of Dr. George S. Langford and Prof. Ernest S. Cory of the University of Maryland, who reported at the same meeting on success with new attractants for Japanese beetles.

Before the war, the standard Jap beetle attractant was a mixture of eugenol and geraniol—the latter more commonly known as geranium oil. War made these compounds scarce, and new ones had to be sought.

The two Maryland entomologists tried out 100 different mixtures, and found that 40 of them had definite attractions for Japanese beetles. Ten of them ranged from two to three times as effective as the geraniol-eugenol standard. Two compounds, phenyl ethyl butyrate and caproic acid, were found to be exceedingly promising as ingredients for beetle

baits. Caproic acid, especially, seems able to give previously used attractants even higher drawing power to beetles roving in the neighborhood.

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## SEISMOLOGY

## Earthquake on India Coast Strong as Tokyo Quake

► **THE EARTHQUAKE** that caused the disastrous tidal wave along the northwest coast of India was felt by instruments in observatories all over the world; no less than 19 of them transmitted data to the U. S. Coast and Geodetic Survey through Science Service. The observatory of the California Institute of Technology at Pasadena reported that the disturbance on the sea bottom where it centered was at least as severe as the earthquake that wrecked Tokyo and other Japanese cities in 1923.

Seismologists of the U. S. Coast and Geodetic Survey gave out a revised location for the epicenter, which places it a little to the southeast of the spot named previously. (See SNL Dec. 8.) The new location is in latitude 22 degrees north, longitude 60 degrees east; this is on the sea bottom near the head of the Arabian Sea, about 300 miles southwest of Karachi, where heavy wave damage was reported. First shock took place on Wednesday, Nov. 28, at 1:56.9 a.m., Karachi time.

Observatories reporting were those of the Jesuit Seismological Association at St. Louis University, Georgetown University, Fordham University, Xavier University (Cincinnati), Spring Hill College near Mobile, Ala., and Weston College, Mass.; of the U. S. Coast and Geodetic Survey at Chicago, Tucson, Ariz., Honolulu, Sitka and College, Alaska, and San Juan, P. R.; the U. S. Reclamation Service at Boulder City, Nev.; the University of Nebraska; Franklin Institute, Philadelphia; the private observatory of Fred Keller, Sr., at New Kensington, Pa.; the Carnegie Institution of Washington at Huancaayo, Peru; Riverview College, Sydney, N. S. W., Australia; the Dominion Observatory, Wellington, N. Z.

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The valleys of *Ethiopia* are mostly about 8,000 feet in elevation.

The hemlock looper, *Ellopiu lugubrosa*, devours its weight of hemlock needles in an hour, and does it hour after hour.



## NUTRITION

## Taking Vitamins in Wine Now Seen as Possibility

► SCIENCE is making it easier all the time for you to take your vitamins—soon they may come in wine!

Fortification of wine with B vitamins has proved successful in experiments by Dr. Agnes Fay Morgan, professor of home economics at the University of California.

Dr. Morgan does not recommend that other methods of taking vitamins be abandoned, but she does suggest that fortified wines may be useful as vitamin carriers for medicinal purposes.

The main purpose of Dr. Morgan's research, however, was to counteract the consumption of calories from alcohol, which burns up the body's store of B vitamins.

Chronic wine drinkers, as a result of this burning up of B vitamins, contract an acute alcoholism which is often characterized by dermatitis, mental confusion and the digestive disorders of pellagra. The fortification of wines with B vitamins may help prevent these symptoms.

Vitamins remained stable over a period of four years in the California wines fortified by Dr. Morgan. The experiments were done by Dr. Morgan with the assistance of the California Wine Institute.

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## PUBLIC HEALTH

## Including Health In Reconversion Plans

► IF WE INCLUDE health in our reconversion plans, we have a good chance of raising the state of health throughout the nation to "unprecedentedly high levels." We can increase the average length of life from the present 65 years to 70 years by applying widely the knowledge now available to us, statisticians of the Metropolitan Life Insurance Company point out.

From figures showing the diseases and conditions which take the greatest toll of life, one can learn where the greatest effort must be made, both nationally and by each person anxious to improve his own health.

Leading cause of death for both men and women in the white population of the country in 1942 was chronic diseases of the heart. (The 1942 figures are the latest available for the whole population

and are believed to give a fairly accurate picture of the situation today.)

Next cause of death for women was cancer. Among men disease of the heart's arteries and angina pectoris had a slight edge over cancer as a cause of death.

Ranking high as a cause of death were accidents. They "overshadow by a wide margin every other cause of death throughout the greater part of life among white males," the insurance company statisticians point out.

"In the broad age range 1 to 44 years, accidents constitute almost one third of the deaths from all causes among these men; in the decade of life from 15 to 24 years, the proportion is as much as one half.

"Even among girls and young women the loss of life from accidents is large. They account for one fifth of all the deaths among white girls at ages 1 to 4, and for fully one fourth at 5 to 9 years."

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## MEDICINE-ENGINEERING

## High Speed X-Ray Unit Available for Medicine

► A VERY high speed X-ray unit, the millionth-of-a-second Micronex, was the outstanding feature of a two-day demonstration of X-ray equipment now available for peacetime medicine and industry held in Baltimore by Westinghouse Electric Corporation.

Micronex is a unit perfected under war pressure for use in making detailed studies of the protective characteristics of armor plate, the behavior of armor-piercing shells, and similar matters. Operating on the surge generator principle, the unit builds up great reserves of power which are loosed in one instantaneous burst to activate a special tube which generates X-rays capable of penetrating one inch of solid steel in one millionth of a second.

The Micronex will have important uses in future industries, it is predicted. These include studies of cutting tools operating at high speeds, shaft action within a bearing, life and behavior of cutting oils and many others.

Among the units for medical purposes, another X-ray device, called the Monoflex, is probably the most important. It is a deluxe single-tube diagnostic equipment. Also, there is the so-called PFX, a high-speed miniature film unit for chest surveys in combating tuberculosis.

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# IN SCIENCE

## PLANT PATHOLOGY

## New Fungus Disease Attacks Cinchona Tree

► DISCOVERY of a hitherto unknown fungus disease of the cinchona tree, which has been named cinchona scab, is one of the results of the wartime search made by botanists from the United States for new sources of quinine in South America. It has been identified and is given its first scientific description by Dr. Anna E. Jenkins, mycologist of the U. S. Department of Agriculture (*Journal, Washington Academy of Sciences*, Nov. 15).

The fungus attacks all green parts of the cinchona, making brown spots on leaves and young branches, and causing deformities in the immature seed capsules. It is impossible to judge at present whether the disease does enough harm to be economically important, but it is widespread and has been found on three different species of cinchona trees.

The fungus has been identified as a member of the genus *Elsinoe*, which contains many species that attack higher plants. It is distinct from all previously known species, however, so that Dr. Jenkins has described it as a new species, giving it the botanical name of *Elsinoe cinchonae*.

*Science News Letter, December 15, 1945*

## GENERAL SCIENCE

## Scientists Urge Aid For Axis Victims

► FAMILIES of scientists in Europe, victims of the Axis, are being sent gift packages of food and clothing by a group of wives of American scientists.

The group, made up of wives of scientists at the National Bureau of Standards in Washington, urges any American scientists or individuals interested in augmenting their important work to write to Mrs. E. R. Smith, secretary, at the Bureau for names of needy persons.

Many children as well as adults may be greatly aided during the severe winter expected this year in Europe if help is received promptly. It is suggested that all inquiries state the size of clothing that can be supplied and the countries to which the packages should be sent.

*Science News Letter, December 15, 1945*



## THE FIELDS

### NUTRITION

#### Speed of "Quick" Freezing Affects Quality Little

► **VEGETABLES** don't really need the ultra-fast freezing stressed by commercial producers, food chemists of the New York State Agricultural Experiment Station at Geneva and the Cornell University School of Nutrition declare, after extensive comparative tests. Texture, color and flavor are little affected by the rate of freezing, they state.

In tests on peas and snap beans, nearly instantaneous freezing was achieved by immersing the vegetables in liquid air. Intermediate rates of freezing were also tested by varying the temperature of the cold room in which the freezing was done.

Vitamin determinations on the frozen beans and peas before and after cooking showed little differences for the different rates of freezing. Several experienced food judges were unable to detect differences in taste and color among lots frozen at different rates.

*Science News Letter, December 15, 1945*

### ENGINEERING

#### Compression Distillation For Peacetime Industry

► **COMPRESSION** distillation, a new technique originally developed during the war for getting fresh water out of sea water, promises to become useful in peacetime industry because of its great simplicity and low cost of operation, Allen Latham, Jr., engineer on the staff of Arthur D. Little, Inc., told colleagues at the meeting of the American Society of Mechanical Engineers in New York.

Compression distillation differs from the conventional type of distillation in use for centuries in the way it obtains the heat necessary for evaporating the liquid to be distilled. In the older method, heat was applied continuously to the liquid, and the steam or vapor thus driven off was condensed to liquid again.

In compression distillation, the direct heating-up is only a preliminary step. As soon as a small amount of steam is available it is mechanically raised to a higher pressure. This does two things: raises its temperature as steam, also raises

the temperature at which it condenses to water.

This temperature rise of course means that heat is given off, and this heat is used to evaporate more of the water in the still. As long as the pressure is kept up this process is continuous. Fuel or electric power is therefore used to drive the compressor instead of boiling the water in the still.

The compression distillation method described by Mr. Latham was developed by a group of engineers headed by Commodore Robert V. Kleinschmidt for use by the Navy. It was extraordinarily efficient, consuming only one-fifteenth as much fuel for a given quantity of water distilled as was required by the conventional methods. Water produced by the Kleinschmidt stills played an important part in American victories on some of the desolate Pacific islands, especially Iwo, where our forces had plenty of water when the enemy had got into desperate straits from its lack.

Civilian applications of the compression distillation method are being worked out in the Little laboratories, where Commodore Kleinschmidt has now returned to his prewar status as Dr. Kleinschmidt.

*Science News Letter, December 15, 1945*

### BIOCHEMISTRY

#### Blood Fractionation Process Patented

► **A NEWLY ISSUED** patent of unusual scientific interest is No. 2,390,074, taken out by Prof. Edwin J. Cohn, Harvard University biochemist. It covers the process he has developed for the separation of blood plasma into its constituent fractions: fibrinogen, globulin, albumin, etc., each of which was demonstrated by wartime medical experience to have its own special therapeutic value.

Separation of these compounds from the mixed solution that is plasma depends on extremely accurate adjustments of their respective acid-alkali balance, the electric charges carried by their molecules, the temperature, and finally the organic precipitating agents (alcohol, acetone, dioxane) used to bring them out of solution. Modifications of the process can be used in getting other proteins out of mixed solutions.

Rights in the patent are assigned to the Research Corporation of New York, a non-profit institution which devotes all proceeds from patents which it holds to the promotion of scientific research.

*Science News Letter, December 15, 1945*

### MINERALOGY

#### Beautiful New Gem Stone Found in South America

► **BRAZILIANITE**, a new yellowish-green gem stone of unique chemical and crystallographic properties, has just been given its first scientific description by two mineralogists, Edward P. Henderson of the Smithsonian Institution and Dr. Frederick H. Pough of the American Museum of Natural History.

The stone was first obtained by Dr. Pough in Brazil from the owner, who thought it was chrysoberyl. However, examination proved it to be different both in structure and in chemical makeup. Chemically, brazilianite is a hydrous sodium-aluminum phosphate. Its principal drawback is its lack of hardness. That, plus its scarcity, may prevent it from becoming popular as a gem stone.

Brazilianite is the first new mineral with gem-stone possibilities to be discovered since 1909, when the mineral benitoite was found in California.

*Science News Letter, December 15, 1945*

### AERONAUTICS

#### Details Revealed of Most Powerful Airplane Engine

► **DETAILS** relative to the most powerful aircraft engine developed and in production anywhere in the world have been released. It is the 28-cylinder, 3650 combat horsepower, Pratt & Whitney Wasp Major, designed particularly for big long-range airplanes. With the war over, production is continuing because it will be the power plant in many giant new airliners.

The 28 cylinders of the Wasp Major are arranged in four rows of seven cylinders each, giving the engine a frontal area no greater than that of the 18 cylinder engine put out by the same company. The new engine is only one inch larger in diameter than the original 410 horsepower Wasp, built in 1925. Excellent cooling characteristics result from a helical arrangement of the cylinders about the crankcase.

The giant engine has deep-finned, forged aluminum cylinder heads and duralumin cylinder mufflers of special design; scientifically correct cylinder cooling baffles; the elimination of the conventional ignition harness through the use of seven interchangeable magnetos; and an improved automatically-controlled, hydraulically-driven, variable speed supercharger.

*Science News Letter, December 15, 1945*

BOTANY

# Your Christmas Tree

Number of needle-like leaves clustered together, shape of cones and how they grow, help identify such Christmas trees as pines, spruces and firs.

By DR. FRANK THONE

► CHRISTMAS TREES, this first post-war Yule, will glitter bravely with strange new fruits, we are told: fluorescent lights, plastic baubles, tinted tinsel garlands, and many another novel wonder to make the children's eyes shine brighter. It is well that reconversion has come quickly enough so that some of the things that insatiable Mars has been wolfing for half a decade can already appear, trophy-wise, in the simple home pageantry of the Feast of Peace.

But though the garnish may be new, the trees themselves will be the same as they were in older times. That, too, is well. Christmas is the same feast that has outlived the tyrannies and wars of two long millennia; and if it should see others come, it will, in the end, see them go, too. So it is appropriate that under the symbols of our changing new times we shall still see the abiding symbol of what is beyond the reach of time.

Just because the little trees that suddenly sprout in our homes at Christmas-tide are old, it would seem natural to assume that they are also familiar. Regrettably, however, that is not the case. We make friends and intimates of them, yet most of us somehow never learn their names.

## Easy to Learn

Perhaps this is because we fear the amount of botany involved in learning how to recognize our Christmas tree. There is no reason for such shyness on our part. It is really easy to make friends with our Christmas trees—to learn their first names and some of the more interesting facts about their lives.

You start with their needle-like leaves. Do the leaves on your Christmas tree stand singly, or do two or more of them come from the same spot, their lower ends held together by a common sheath, textured like thin brown tissue paper?

If the leaves are in pairs, or in clusters of from three to five, your tree is a pine. If the number is always five, and the needles dark green and rather soft, it is

a white pine. This will not often be the case; little white pines are rarely cut nowadays for Christmas-tree purposes.

If the number of needles is less than five, it will normally be two, though clusters of three or four are frequently found among them. Many pine species have these paired needles. Botanists lump them all together as the yellow-pine group.

A large proportion of the lower-priced Christmas trees offered in city markets along the entire Atlantic seaboard are saplings of scrub pines that spring up, thick as thistles, on cut-over or burned-over timber lands and abandoned farms. Sometimes they even have cones on them—short, blunt ones, with thick scales.

The other great group of conifers used for Christmas trees have their needles one in a place; another mark that distinguishes them from the pines is their

shortness. Pine needles are ordinarily anywhere from two to ten inches long; needles of the trees in this group are usually under an inch.

Three kinds of single-needled trees dominate the Christmas market; spruces, firs and Douglas fir. They are all related, but each has its distinctive features.

Spruces are the most widely offered of Christmas trees, and probably account for the largest over-all total. They are neat, pyramidal little trees, with close-ranked; dark green foliage. Each needle stands out stiffly and has an acute little point, so that if you grab hold of a twig you get a handful of sharp little pin-pricks. If cones are present, they are thin-scaled and hang downward.

Firs are the aristocrats of Christmas-tree society, and usually command higher prices than do the spruces. Their foliage is denser as a rule, and always softer-looking as well as softer to the touch, for the needles have an elliptical cross-section instead of the square or diamond shaped one of spruce needles. They are slightly curved and blunt-ended instead of straight and stiff.



**BOTH POPULAR**—Widely used as Christmas trees are little spruces, left, easily identified by their singly borne, prickly-stiff needles and down-hanging thin-scaled cones. Small pines, right, also much used, can be told by their longer needles, two or more in a cluster, and their stumpy, thick-scaled cones.

Photographs by Fremont Davis, Science Service staff photographer.



There are likely to be drops or lumps of half-hardened gum on the trunk and branches, whence the tree's other name of balsam. If there are any cones, these will be real beauties; oblong-elliptical in outline, with thin scales pressed closely together, and standing upright on the twigs like fat candles.

While there are several species each of spruces and firs, the Douglas fir stands alone. It isn't really a fir, nor is it really a spruce, though it is sometimes referred to as Douglas spruce.

Douglas fir needles are intermediate between those of spruces and firs: less stiff than spruce and not so flexible as fir; they have points but are not particularly prickly. The tree can be positively identified most easily if there are cones, because between each pair of scales there is a curious, three-pronged appendage that is absolutely unique among conifers.

Douglas fir, strictly a tree of the West, during recent years has also invaded the Yuletide markets as far east as Boston.

In addition to the Big Four among Christmas trees—pine, spruce, fir and Douglas fir—there are a number of

other evergreens that are used to some extent as Christmas trees, depending largely on local cutting for local markets. Among these are red cedar (which is really a juniper, not a cedar at all), with its exceedingly small, needle-sharp leaves and berries instead of cones; hemlock, with very short, blunt leaves which it sheds too copiously to be a really desirable indoor companion; and arbovitae or white cedar (again not really a cedar), with its minute, scale-like leaves completely covering its finely branching twigs.

### Use Live Trees

One trend that deserves to be encouraged is the growing use of live Christmas trees, with their roots still on them, set in tubs or baskets.

Live Christmas trees are not expensive: John H. Derby, a New York fire-prevention engineer who for some years has been carrying on a successful one-man crusade in favor of their use, states that their cost compares favorably with the prices usually charged for cut Christmas trees of the conventional sort.

While in use a live Christmas tree is much more attractive than a cut one, because its foliage remains green and glossy, and (what is especially important to the housewife) it doesn't shed nearly so many needles. Moreover, since

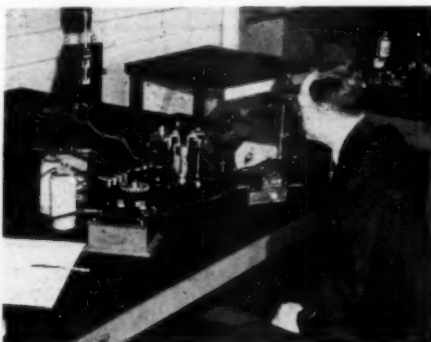
it does not dry out as long as the roots are kept moderately moist, it never becomes a fire hazard.

At the end of the Yule season, the tree can be taken out and set in a previously prepared pit. When this is done, the burlap that is always wrapped around the earth-ball on the roots should be left in place, and loose earth, mixed with leafmold or well-rotted manure, tamped around it.

The planting should be set about four inches below ground level, to permit copious watering in all but actually freezing weather. A tree winter-planted in this way will usually survive, and will be a lasting memento of your Christmas celebration.

Conservationists used to campaign (albeit ineffectually) against the use of Christmas trees. Now, however, the situation is changed. A large proportion of the Christmas trees that come to market are cut from reforestation plantings, where saplings have to be thinned out, like vegetables in garden rows, so that the rest may have room to grow. Some of the choicer offerings are even raised by nurserymen for the holiday trade, just as poinsettias and Jerusalem cherries are raised.

Christmas wreaths and garlands, though, still present some troublesome

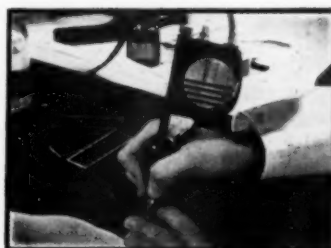


### STUDENTS' POTENTIOMETER MEETS MANY LAB NEEDS

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## Do You Know?

England imported nearly twice as much *cheese* in 1944 as in 1938.

The light gray metal *beryllium* is hard enough to scratch glass.

New *phosphorus* compounds have been developed which are of exceptional value in the making of plastics.

A *gorilla* in an English zoo, fed potatoes instead of bananas during the war, did so well that it is doubtful if he will ever get bananas again.

The United States normally consumes about 75,000 tons of tin a year, or approximately 45% of the total world output; domestic production is less than 170 tons annually.

*Tea-tablets* may replace the familiar dried tea leaves; tea can now be reduced to tablets which are cheaper to process and transport than tea in bulk and which make an equally satisfactory beverage as the loose tea.

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problems, from the conservationist's point of view. Native American holly should never be purchased at all. It is practically always collected by wasteful and destructive methods, and usually by persons who do not own the woods where it grows or take the trouble to get the owner's permission. In wide zones around some of our Eastern cities this beautiful small tree has been all but wiped out, and a long closed season is

needed to give it a chance to recover.

Where English holly is offered, it is a better buy even though it costs more. It is raised by regular growers, who are honestly entitled to their pay. Moreover, English holly makes a handsomer decoration than the native variety; its leaves are a glossier green and its berries a brighter red.

*Science News Letter, December 15, 1945*

### MEDICINE

## "Only Pneumonia"

➤ "YOU won't have to come out, he only has pneumonia," the patient's doctor, a general practitioner, telephoned the consultant he had previously asked to see the sick man he was sending to the hospital.

The consultant in this case was Dr. Roger I. Lee, of Boston, the new president of the American Medical Association. Dr. Lee quoted the conversation at the recent meeting of the Association's house of delegates to illustrate the advances and changes in medicine.

With X-rays to aid in diagnosis and easy-to-give sulfa drugs and penicillin instead of complicated serum treatment, pneumonia is no longer a killer and has become a disease which the general practitioner can treat without aid from special consultants.

This and other advances in medicine are changing the picture of what constitutes adequate medical care, Dr. Lee pointed out.

They must, he believes, be considered as well as the number of doctors and hospitals per 1,000 population in defining adequate medical care with a view to making it available to everyone.

Plasma and whole blood not so long ago were given generally only in well equipped hospitals by physicians. Yesterday they were given on battlefields and landing beaches by hospital corpsmen.

Penicillin makes it easy for the general practitioner to treat syphilis and gonorrhea, whereas formerly he was "a little overwhelmed and dizzy," Dr. Lee believes, by syphilis treatment which required injecting arsenicals into the patient's vein.

Treatment of tuberculosis, on the other hand, "no longer consists in rest, fresh air, milk, eggs and a desire to live" but, Dr. Lee stated, demands the services of specialists in chest surgery, thus removing it from the scope of the general practitioner.

Progress in obstetrics has reached the point where having a baby "ranks with catastrophic illness or an operation as a major inroad on the family budget," Dr. Lee pointed out. He believes that anesthesia, prompt surgical repairs, nursing and all the things that make it necessary to have a baby in the hospital and increase the cost of childbirth are a part of adequate medical care.

*Science News Letter, December 15, 1945*

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## == GOLD ==

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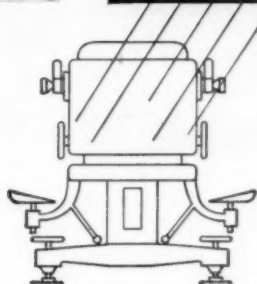
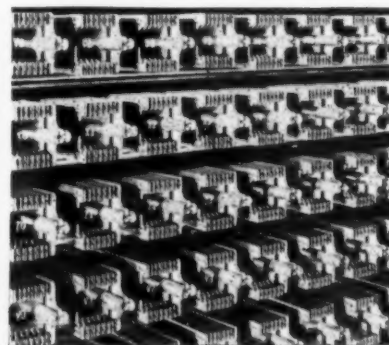
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# Books of the Week

**ADULT EDUCATION AFTER THE WAR:** A report of an inquiry made for the British Institute of Adult Education—*Oxford University Press*, 64 p. 4/. A study of the present situation in adult education and a plan for its extension by means of changes in methods and organization.

**THE ASTRONOMICAL HORIZON**—Sir James Jeans—*Oxford*, 23 p., plates, 2/6. A descriptive, non-mathematical statement of the present knowledge in stellar astronomy.

**THE AXIS IN DEFEAT:** A collection of documents on American policy toward Germany and Japan—Department of State, publication 2433, *Government Printing Office*, 118 p. 30 cents. Contains Atlantic Charter, reports of conferences of the Allied powers, surrender documents, etc.

**BIOENERGETICS AND GROWTH:** with special reference to the efficiency complex in domestic animals—Samuel Brody—*Reinhold*, illus., charts, diagrams, 1023 p. \$8.50. A comparative study of the energetic efficiencies of agricultural processes, such as those concerned in the production of meat, eggs, milk and muscular work.

**CIVILIZATION AND GROUP RELATIONSHIPS**—a series of addresses and discussions—R. M. MacIver, Ed., *Harper*, 177 p. \$2 (Religion and Civilization Series) Members of various minority groups consider the minority problem from the point of view of national welfare and of the effects within the minorities themselves.

**DDT FOR INSTITUTIONS**—A report on the methods of preparations and use of DDT for insect control. *Research Depart-*

*ment, Hospital Bureau of Standards and Supplies, Inc.* 12 p. 50 cents. Complete instructions in the use of DDT. Bibliography.

**DIAGNOSIS AND MANAGEMENT OF PERIPHERAL NERVE INJURIES**—Robert A. Groff—*Lippincott*, 188 p., illus., \$8. A practical working guide with specific advice on how to recognize and manage injuries affecting the peripheral nerves, with an illustrated outline of peripheral and cranial nerve function.

**DR. W. C. ROENTGEN**—Otto Glasser—*Thomas*, 169 p., illus., \$4.50. A commemorative volume for the 100th anniversary of the birth of the discoverer of the X-ray, containing a new translation of the three classic papers on "A New Kind of Rays."

**THE EFFECT OF SMALLPOX ON THE DESTINY OF THE AMER-INDIAN**—E. Wagner Stearn and Allen E. Stearn—*Bruce Humphries*, 153 p., tables, \$2.50. A compact history of smallpox among the American Indians from the 16th to the 20th century.

**FISHES AND SHELLS OF THE PACIFIC WORLD**—John T. Nichols and Paul Bartsch—*Macmillan*, 201 p., illus. and plates, \$2.50. Complete descriptions of the appearance and habits of the fishes and shells of the Pacific which are most easily identified and most widely distributed.

**GENERAL BIOLOGY AND PHILOSOPHY OF ORGANISM**—Ralph S. Lillie—*University of Chicago Press*, 215 p., \$3. A theoretical biology essentially concerned with the interrelationships of the psychical and

the physical as these things manifest themselves, in all living things.

**INTERNATIONAL RELATIONS IN SCIENCE:** A review of their aims and methods in the past and in the future—Walter B. Cannon and Richard M. Field—*Chronica Botanica*, 46 p., free. Memorandum prepared for the Division of Foreign Relations of the National Research Council. An investigation of the opinions of scientists on the aims, scope, and possibilities of international relations in science.

**OCEANIA:** Hawaii, New Zealand and the South Pacific—Charles A. Borden—*Holiday House*, 25 p., illus., \$1. An informal presentation for tomorrow's citizens of the role these islands have played from the time of the Polynesian colonizers to the aircraft carriers of Task Force 58.

**THE PERSON IN THE BODY:** An Introduction to Psychosomatic Medicine—Leland E. Hinsie—*Norton*, 263 p., \$2.75. An introduction for the general reader to the study of the relationship between emotions and bodily ills.

**THE PHYSICIAN'S BUSINESS:** Practical and economic aspects of medicine, 2nd ed.—George D. Wolf—*Lippincott*, illus., 433 p., \$6. Solves the problems of the practitioner; shows how to efficiently and effectively systematize work to be done.

**THE ROMANCE OF HUMAN ARCHITECTURE**—Maurice Chideckel—*Bruce Humphries*, 107 p., \$2. A brief and lucid description of the nature and function of all the organs of the human body.

**THE SCIENTIST AND LOCAL GOVERNMENT**—F. Le Gros Clark, Association of Scientific Workers, London—*Temple Fortune Press*, 12 p., 3d. An exposition of the organization and function of local government in England and Wales.

**THIS EARTH ONE COUNTRY**—Emeric Sala—*Bruce Humphries*, 185 p., \$2.50. A political, economic and religious solution to the problems of world peace and international ethics. Based on the Bahá'í faith.

**TREES, SHRUBS AND VINES FOR THE NORTHEASTERN UNITED STATES**—George Graves—*Oxford*, 267 p., illus., \$3. Suggestions for culture, propagation, and pruning of a selective list of trees, shrubs, and vines suitable for the area by the as-



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**TRIAL OF WAR CRIMINALS**—*Superintendent of Documents*, 89 p., 20 cents. Contains the Report of Robert H. Jackson to the President, the agreement establishing an international military tribunal and the indictment, plus appendices on the responsibility of individuals and special groups.

**TROUBLE ZONE**—Leon Dennen—*Ziff-Davis*, 173 p., \$1.50. Firsthand report on the Balkans and the countries of the Eastern Mediterranean where the author sees the stage for a vast conflict between England and Russia, concluding that only democratic federations will bring peace to these small countries.

**TURKEY**—Vernon Ives—*Holiday House*, 25 p., illus., \$1. The story of the rebirth of Turkey into a modern Western democracy, showing how the country developed and what its people hope to do.

**THIS WAY TO UNITY**—Arnold Herrick and Herbert Askwith, Editors—*Oxford Book Co.*, 462 p., \$1.50. A collection of sketches and essays aimed at promoting goodwill among racial and religious groups. For use in English classes as a basic literature textbook.

**WOOD PRODUCTS FOR FERTILIZER**—Report of conference at Orono, Maine, June 29, 1945, *Northeastern Wood Utilization Council*. Bulletin 7, 72 p., charts and tables, \$1. Discussions and papers on problems of fertilization. Appendix includes description of new ammonia process for sulphite pulp.

**WORLD ORDER: ITS INTELLECTUAL AND CULTURAL FOUNDATIONS**—F. Ernest Johnson, Ed.—*Harper*, 247 p., \$2. A series of addresses by Margaret Mead, Harold Lasswell and David Levy as well as other leaders in intellectual life.

*Science News Letter, December 15, 1945*

lected a stick of dynamite.

A Californian was repairing a wall one day when a concrete block fell from a fourth-story scaffold and hit him on the head. Reeling into the street, he was struck down by a policeman's motorcycle. He recovered satisfactorily from both accidents.

A cab in Saskatchewan skidded into a lamp post one night last January when the thermometer hovered around 16 degrees below zero. The driver was knocked unconscious and might have frozen to death if a fire alarm box on the lamp post hadn't been set off by the crash, bringing firemen to the rescue.

Doctors and economists both might well be puzzled by the case of the 17-month-old in Pennsylvania who swallowed a nickel and coughed up a penny.

*Science News Letter, December 15, 1945*

#### SAFETY

## Freak Accidents

► THE SAD CASE of a hunter who shot himself in the knee when his arm was jarred by a duck, causing his trusty automatic pistol to go off, is listed by the National Safety Council in its 1945 round-up of freak accidents.

It's odd enough, perhaps, when a fire starts itself and then puts itself out, but when it happens twice in the same way, you begin to wonder. During the past year in both New York and Maine the sun's rays, passing through a bottle

of water in a truck, set fire to the floor of each truck. But the heat of the fire broke the bottle and the water put out the flames.

When a pin in her washing machine broke off, Mrs. Fixit of Minnesota looked around for a substitute. Sawing off the end of something of appropriate size she found around the house, she started to hammer it into the machine. But the substitute pin exploded and blew her across the room—she had se-

Much onion seed used in the United States is grown in the Canary Islands.

DDT insecticide preparations, now available on the market, should be used as directed on the package so that they will do no unwanted harm.

The axolotl, a salamander having external gills and living its entire life in water, if fed thyroid loses its gills and becomes a land salamander, going to water only to lay its eggs.

## Dietary Protein after Surgery and Other Trauma

apparently must be maintained at a level above normal in order to assure proper wound healing\* and at least average resistance to infection.\*\* The feeding of meat, therefore, in adequate amounts, as soon as it can be instituted, appears doubly advantageous: The protein content of meat is high and of highest biologic value; the human digestive tract appears well adapted for handling meat protein.\*\*

\*Hoff, H. E.: Physiology, New England J. of Med. 231:492 (Oct. 5) 1944.

\*\*Crandall, L. A., Jr.: The Clinical Significance of the Plasma Proteins, Memphis M. J. XIX:147 (Oct.) 1944.



The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

**AMERICAN MEAT INSTITUTE**  
MAIN OFFICE, CHICAGO... MEMBERS THROUGHOUT THE UNITED STATES

# • New Machines and Gadgets •

❁ **AUTOMATIC toaster**, of a simple and inexpensive type, is electrically heated. The bread is dropped into an inclined recess, moves downward by gravity as permitted by a timing device, and falls forward when it reaches the bottom of the toaster.

Science News Letter, December 15, 1945

❁ **ELECTRIC razor**, pencil-shaped, has its cutting face in the sides of the cone-shaped end. The rotating cutting blade is kept in contact with the perforated sloping point by centrifugal force and not only cuts the hair but blows away the cuttings.

Science News Letter, December 15, 1945

❁ **FLASHLIGHT**, without the familiar glass lens, has a transparent plastic casing with a dome-shaped end. A round section of the center of the dome-shaped end is cast lens-shaped. Being an integral part of the casing it is difficult to break.

Science News Letter, December 15, 1945

❁ **FOLDING flatiron** for the convenience of travelers has a handle that may be closed down to the thin base when packed or opened upward when in use. The handle is hinged at its rear and is unsupported at its front. A locking device holds it in position.

Science News Letter, December 15, 1945

❁ **PLASTIC SKIN**, applied to metal machine parts to protect them from corrosion in the tropics, contains fiberglas because this fiber gives strength and



transmits a minimum amount of moisture. To remove, the plastic is slit with a knife and stripped off as illustrated in the picture.

Science News Letter, December 15, 1945

❁ **TRAFFIC SIGNAL**, to be attached to the rear window of an automobile, consists of two windshield wiper motors electrically controlled by the driver. The wiper arm of either can be raised at will; one has an arrow pointing to the right, the other a similar arrow pointing to the left.

Science News Letter, December 15, 1945

❁ **SCISSORS sharpener** is a simple implement for home use. It consists of a stand to hold the blade of the shears so that the sloping surface of the cutting edge is parallel to the base of the device. The file used for sharpening has a short support on its handle which keeps it in proper position as the knob slides on the base.

Science News Letter, December 15, 1945

❁ **VISUAL education device** is attached to the head in front of the eyes and contains picture film that can be viewed in stereoscopic relief. By glancing downward, the wearer has a clear view of his desk. Both of his hands are free for drawing or other work.

Science News Letter, December 15, 1945

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 289.

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